

## CLAIMS

### Amendments to the Claims:

This listing of claims will replace all prior versions, and listings of claims in the application.

### Listing of Claims:

1. (Currently amended) A stent, comprising a biodegradable SMP material for use in the non vascular or vascular field, wherein the SMP material is selected from the group consisting of covalent polymer networks and covalent polymer interpenetrating networks.
2. (Currently amended) The stent ~~as claimed in of~~ claim 1, ~~and~~-wherein the stent comprises one of the following: a basic structure of a biodegradable plastic material and a degradable metal ~~material~~-coated by SMP material.
3. (Currently amended) The stent ~~as claimed in of~~ claim 2, wherein the degradable metal includes one of the following: a magnesium alloy, pure magnesium, and a composite of magnesium or a magnesium alloy with biodegradable polymer.
4. (Currently amended) The stent ~~as claimed in of~~ claim 1, further comprising additional additives selected among x ray contrast materials and medically effective compounds.
5. (Currently amended) The stent ~~as claimed in of~~ claim 1, wherein the SMP material is selected from among the following: polymer networks, thermoplastic SMP materials, composite materials and blends.
6. (Currently amended) The stent ~~as claimed in of~~ claim 1, wherein the SMP material is selected from among at least one of SMP materials in which the SMP effect is induced thermally, is photo induced, wherein the SMP material is biocompatible, haemocompatible and wherein the SMP material reveals a particle free degradation behaviour.

7. (Currently amended) The stent ~~as claimed in~~ of claim 5, wherein the network includes at least one of the following: caprolacton units and pentadecalacton units.

8. (Currently amended) The stent ~~as claimed in~~ of claim 7, wherein the network consists of cross linked caprolacton macromonomers.

9. (Currently amended) The stent ~~as claimed in~~ of claim 1, wherein the stent additionally comprises a surface coating.

10. (Currently amended) The stent ~~as claimed in~~ of claim 9, wherein the surface coating is selected among the coatings that modify haemocompatibility.

11. (Currently amended) A method of manufacturing a stent of a biodegrad[[e]]able SMP material, comprising the processing of the SMP material to a stent by one of the following extrusion methods, coating methods, metal casting methods, and spinning and weaving methods.

12. (Currently amended) A system, comprising a stent of a biodegrad[[e]]able SMP material, and including at least one of the following: a temperature controlled balloon catheter and a balloon catheter with an optical fiberre.

13. (Currently amended) A method for the minimal invasive implantation of a stent, comprising the following steps:

placing a stent of a biodegrad[[e]]able SMP material onto a temperature controlled balloon catheter or a balloon catheter with an optical fiberre, wherein the SMP material has two shapes in the memory and wherein this material was programmed to two shapes, wherein the first shape, compared to the second shape, is a tubular shape with a larger diameter;

inserting the stent placed in this manner to the desired position, wherein the SMP material exists in its second shape;

heating the stent by inserting a heating medium into the catheter, and introduction of light (preferably UV light) of a suitable wavelength;

activating the SMP effect to bring the stent into the first shape; and

removing the balloon catheter.

14. (Previously presented) A method for the minimal invasion implantation of a stent, comprising the following steps:

placing a stent of a biodegradable material SMP material onto one of the following:  
a temperature controlled balloon catheter and a balloon catheter having a an optical fiber;

inserting the stent placed in this manner to the desired position;

one of:

heating the stent by inserting a heating medium into the catheter and introducing light (preferably UV light) of a suitable wavelength;

activating the SMP effect to bring the stent into its permanent shape; and

removing the balloon catheter.